Allergy Abstracts

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Asthma and Hay Fever

Standardization and Antigenic Analysis of Pollen Extracts by Gel Diffusion (An Abridgement). Wodehouse, R. P.: Ann. Allergy **11**: 720, 1953.

Antigenic extracts can be assayed and standardized by gel diffusion techniques. Devised by Oudin and modified by Ouchterlony, these techniques depend on the rate of diffusion of the antigen and antiserum through a semi-solid neutral agar. As the antigen and antiserum diffuse through the neutral agar they meet and form precipitating bands between their sources. When two identical antigens are used, their precipitating bands interfere with each other and form symmetrical arches over the well containing the serum. If the antigens are the same in kind but different in amounts, the arch will be distorted toward the well containing the weaker antigen. If an antigen in one is sufficiently concentrated to produce a precipitate of its own, it may still be able to bend the approaching end of the precipitating band from the other, making it unsymmetrical. Antigens which are different will produce precipitating bands which cross without interference, provided their two antisera are combined in the serum well.

The laws of diffusion state that the rate of diffusion is proportional to the square root of the time and some fractional power of the concentration of the diffusing substance. The distance traversed by a precipitating band at any given time is therefore a measure of the concentration of the antigen. If the rate of penetration is plotted on coordinate paper against the logarithm of the concentration, the points will fall on a straight line. This is most easily done by using semilogarithmic coordinate paper and recording the actual antigenic concentration in the logarithmic scale.

In the present studies, ragweed extract was caused to react against rabbit antiragweed serum. With the short ragweed pollen extracts, there were seven distinguishable precipitating bands observed. One of these, referred to as the "b" band, is the most distinct and the easiest to recognize and was therefore the one chosen for these experiments. A standard short ragweed extract was prepared and diluted 1:2 with saline. This diluted extract was treated as the unknown, and five dilutions prepared from it were compared with five dilutions prepared from the full strength extract. The two series of dilutions were poured over antishort-ragweed-serum-agar. The distance of penetration was noted at three different time intervals and plotted on appropriate graphs. The reliability of the gel diffusion technique was demonstrated by the results of these experiments which showed that the "unknown" (1:2 dilution) was 51.5 per cent of the standard (full strength) in antigenic activity. The same method was then used to assay an antiragweed serum with equally accurate results. The next experiment was done with a ragweed extract maintained in a constant temperature water bath at 37° C. Gel diffusion studies demonstrated that this extract underwent a gradual decrease in potency up to 75 per cent at the end of thirty hours. These results were checked and corroborated by comparing various samples of the heated extract with unheated extracts of known strength.

In still another experiment an 8-month-old ragweed extract in 50 per cent glycerine was compared with a current standard and was shown to have a potency of 64.5 per cent of the standard. When the same two extracts were compared by reagin neutralizing techniques and by precipitating studies, the results were in close agreement.

This method of measuring potency of an extract by gel diffusion offers a valuable in vitro system for standardizing allergenic extracts. F.

The Effect of Methantheline Bromide (Banthine) on Pulmonary Ventilation in Bronchial Asthma and Pulmonary Emphysema. Sjoerdsma, A., and Dodge, H. T.: Am. J. M. Sc. **227**: 255, 1954.

Twelve patients with severe asthma or chronic emphysema were given intravenous injections of 50 mg. of Banthine in 10 c.c. of isotonic saline over a period of one minute. As a control, some of the patients were given intravenous injections of physiological saline prior to receiving the Banthine while others were given aminophylline intravenously after receiving the Banthine. The vital capacity (V.C.) and maximum breathing capacity (M.B.C.) were measured prior to and following the injection to ascertain the possible changes that might have occurred in pulmonary function. Most of the asthmatics showed a definite improvement in breathing capacity; the V.C. was from 10 to 70 per cent better and the M.B.C. was from 19 to 100 per cent improved. Three patients with severe emphysema, however, showed no improvement following the medication. Saline produced essentially no change in the breathing pattern, while intravenous aminophylline, in the 2 cases in which it was employed, appeared to be somewhat less beneficial than the intravenous

Banthine. Tachycardia, dryness of the mouth, and blurring of vision were the side effects most commonly observed. The side effects usually lasted from three to four hours and were never severe enough to prohibit further use of the drug. The authors cite several instances of symptomatic improvement following the oral administration of methantheline bromide. They recognize the posible difficulty in dislodging the thickened secretions occasionally encountered in prolonged oral therapy. On the other hand, they feel that their results with intravenous Banthine have been sufficiently encouraging to warrant its further use in bronchial asthma and emphysema. R. W.

Aerosol Trypsin Therapy in the Treatment of Asthma. Prince, H. E., Etter, R. L., and Jackson, R. H.: Ann. Allergy **12**: 25, 1954.

Seventeen cases of bronchial asthma were treated with aerosol trypsin (Tryptar). Nine of these patients were sensitive and had secondary infectious complications; the remainder had infectious asthma without significant skin reactions.

After the patients were given 0.25 c.c. of epinephrine 1:1,000 by aerosol, Tryptar freshly dissolved in Sorensen's buffered phosphate solution was administered by "Pen-i-sol" aerosol apparatus employing oxygen for nebulization. Preliminary investigations established the optimal dose of Tryptar to be 125,000 units in 2 c.c. of solvent. Fresh dilutions were prepared for each treatment. Two patients received only one treatment each; the remainder received from two to ten nebulizations. Along with the Tryptar, each patient received appropriate antibiotics, symptomatic therapy, and conventional allergy management based on significant skin reactions.

Results of the Tryptar treatments were disappointing in that only two of the patients experienced any definite beneficial results while the remainder noted only questionable or negligible thinning of the sputum. Several of the patients experienced such side reactions as burning in the chest, increased asthma, or laryngeal irritation. F.

Etiology of an Epidemic Asthma in Bauru. (Etiologia da "asma epidemica de Bauru.") Mendes, E., and Ulhoa Cintra, A.: Alergia. Revista Iberoamericana de Alergologia **3**: 104, 1954.

Following the institution of the use of a new substance, hexane, to extract oil from castor beans in a factory located in Bauru, Brazil, many cases of allergic respiratory symptoms appeared. Within a few days, 150 cases of severe asthma were reported to the health department. Nine of these patients died.

Allergic investigations were performed on 30 patients. It was found that 61.5 per cent had had these symptoms prior to the present outbreak. Some had manifestations in other shock organs before or during the asthmatic attack. Some patients became symptom-free as soon as they left the city, but the symptoms reappeared when they returned. Symptoms were worse on dry sunny days and diminished on rainy days.

Positive direct and passive transfer reactions and experimental provocation of the symptoms in 4 cases proved that the cause of the epidemic was *Ricinus communis* bean.

All cases improved rapidly when he health department closed the factory and the symptoms reappeared with the same characteristics one month later when the factory was reopened.

The authors believe that the hexane made the allergen more diffusible, that is, like an aerosol, and that, in this form, the ability of the allergen to sensitize and to provoke symptoms was greatly enhanced. Prophylactic measures are suggested for the avoidance of respiratory industrial hazards.

José Cortez

Aerosols of Pancreatic Dornase in Bronchopulmonary Disease. Salomon, A., Herchfus, J. A., and Segal, M. S.: Ann. Allergy, **12**: 71, 1954.

Pancreatic desoxyribonuclease (Pancreatic Dornase), a product prepared from beef pancreas, is a pus liquefying enzyme. It is unaffected by antibiotics or aerosolization and remains stable for from six to eight hours when kept at room temperature. Since its activity is primarily one of depolymerization rather than degradation, it produces no appreciable amounts of noxious material which could be absorbed systemically.

In the present study, 35 patients suffering from various bronchopulmonary conditions were given 50,000 to 100,000 units of Pancreatic Dornase by aerosol every six to eight hours. A potent bronchodilator was added if evidence of bronchoconstriction was present. Treatment was continued for from two to six days depending on such factors as volume of sputum, decrease in cough, and clinical improvement. Beneficial effects were usually apparent within one-half to one hour after treatment as evidenced by increasing amounts of considerably thinner sputum expectorated during the ensuing three to six hours. The 24-hour sputum specimens were usually increased 2 to 3 times in volume over the control pretreatment specimens. Along with clinical improvement there was a marked decrease in pus and cellular elements in the sputum. Best results were obtained in such conditions as bronchiectasis, infected atelectasis, abscess, and unresolved pneumonia in which there are large amounts of tenacious, mucopurulent secretions in the bronchopulmonary tree. Less striking results were seen in patients with chronic asthma or emphysema with a superimposed infection. No side effects were noted following any of these treatments.

F.

Otorhinology and Ophthalmology

Vaccination for Chronic Sinusitis and Chronic Nasal Catarrh. Kinghorn, H. M., Wilson, G. E., and Dworski, M.: Arch. Otolaryng. **58**: 598, 1953.

Sixteen patients with chronic sinus disease and 7 patients with chronic nasal catarrh were treated with autogenous vaccines and/or filtrates. The vaccine and/or filtrate was injected intracutaneously; in some cases, the filtrate was instilled into the nasal sinuses. The method used in the preparation of the vaccines and filtrates, the dosage schedules, and the technique employed for introduction of filtrates into the sinuses are described in detail. Case histories on all cases are presented.

Staphylococcus aureus was present in 13 of the 16 cases of sinus disease, and *Staphylococcus albus* was present in the other 3 cases. Hemolytic *Staphylococcus aureus* was present in 8 of the 16 sinus disease cases. *Staphylococcus aureus* was present in all 6 cases of chronic nasal catarrh. A streptococcus was present in 4 of the 16 sinus disease cases.

Of the 16 patients treated for chronic sinus disease, 6 were cured and 8 were improved. Thus, 14 of 16 patients, or 87.5 per cent, were either cured or improved. Results were followed for from three to eighteen years. Four of these patients remained permanently cured, and 4 remained permanently

improved. Of the 7 patients with chronic nasal catarrh, 4 were cured and 2 improved. A follow-up after from six to thirteen years showed that 5 had remained permanently cured. C.

Cortogen Nasal Suspension With Chlor-Trimeton in the Treatment of Allergic Rhinitis. Seidmon, E. E. P., and Schaffer, N.: Ann. Allergy **12**: 85, 1954.

One-hundred and fifty-three patients ranging in age from 4 to 54 years and suffering from seasonal or perennial allergic rhinitis were treated with intranasal instillation of a cortisone-Chlor-Trimeton suspension. Three drops of this medication were instilled in each nostril as often as every four hours. Treatment was continued for from two weeks to twelve months. Marked vasoconstriction was observed in the large majority of these patients. Rebound reactions did not occur. No systemic effects were encountered. One-hundred and thirty-two (86.3 per cent) of the patients had good to excellent relief as evidenced by complete vasoconstriction lasting from six to twelve hours. F.

Intranasal Corticotropin—Its Physiological and Clinical Effects. McKendry, J. B. R., Schwartz, H., and Hall, M.: Canad. M. A. J. **70**: 244, 1954.

Nine normal individuals were used for experimental studies to test the clinical effectiveness of ACTH administered intranasally. Total eosinophil counts and urinary 17-ketosteroid excretion studies were carried out before and after these subjects were given either 20 or 40 units of ACTH in a single intranasal application. The findings definitely indicated that the hormone was physiologically effective when used in this manner. The authors treated approximately 60 patients suffering from various ailments with intranasal ACTH during the past year. The results obtained in 17 cases of rheumatoid arthritis, gout, asthma, hay fever, and chorea are discussed in detail. Three patients with asthma and one individual with nasal allergy responded well, while one patient with asthma failed to respond to either intranasal or intramuscular ACTH. The usual dose given was either 20 or 40 units twice daily. Many patients responded within a few hours following institution of the therapy. In one patient with allergic rhinitis, polyps disappeared under treatment. The only untoward reactions observed were some nasal irritation and occasional sneezing during the first few minutes after application of the hormone. The authors suggest that the intranasal route may be a very practical means of administering this hormone. R. W.

Miscellaneous Allergies

Sudden Death Following Injection of Procaine Penicillin. Bell, R. C.: Lancet **1**: 13, 1954.

A patient with a chronic leg ulcer who was operated on for a plastic repair of the lesion was given a local anesthetic containing procaine and Adrenalin. He was put on crystalline penicillin, 100,000 units, twice daily for several days following the operation. Ten days later, he was operated upon again, and penicillin therapy was reinstituted twice daily. He was perfectly well until thirteen days following the first operation when he was given his initial injection of procaine penicillin (300,000 units). This injection was given deep into the buttocks and within one-half minute, he became acutely ill. He complained of pain, his face was pale, his eyes became blood shot, and his extremities were deeply cyanosed. He quickly developed signs

of pulmonary edema with sticky fluid exuding from his mouth. His airway was obstructed so his tongue was pulled forward and his trachea aspirated. He was given oxygen through a BLB mask and 2 ml. of intravenous nikethamide, but he expired within a few minutes after the penicillin injection. At post-mortem, the lungs were edematous (twice their normal weight) and the aryepiglottic folds were swollen. The trachea was pink, but free of frothy mucus indicating that aspirations had been successful.

The patient had had several previous courses of penicillin but, so far as could be ascertained, had never received procaine penicillin G. No other information regarding the patient's past personal allergic history was discussed. In view of the increased likelihood of penicillin reactions due to the vast exposures to the drug, the author strongly urges that its use be restricted to conditions where it is absolutely essential. R. W.

Electrocardiographic Changes During Sensitivity Reaction to Penicillin. Glotzer, S.: Am. Heart J. **47**: 300, 1954.

The literature on cardiac manifestations of hypersensitivity is briefly summarized. The author reports the case of a 43-year-old man who was treated with oral penicillin for headache, epigastric cramps, and nausea. Two days later, penicillin was discontinued because of burning of the eyes, swelling of the eyelids, and exacerbation of a generalized skin rash. His temperature was normal, the heart was slightly enlarged, the liver was slightly enlarged and tender, and he had a generalized erythematous macular skin rash. The urine contained albumin, granular casts, and acetone. The white blood count was 7,000 per cubic millimeter with 3 per cent eosinophils. An electrocardiogram made on admission "showed inverted T waves in the limb leads and in all the chest leads, as well as in a V_F, with a flattened T in lead a V_L. These findings are considered indicative of pericarditis." The electrocardiographic changes were still abnormal four days later and had reverted to nearly normal by the tenth day. Antihistamines were administered during the last four days of this period. K.

Agranulocytosis in a Patient Treated With Carbimazole. Harrison, A. R.: Lancet **1**: 396, 1954.

A 37-year-old woman with Graves' disease and a basal metabolic rate of plus 42 was given 15 mg. of Carbimazole daily for ten days and then 30 mg. daily for the next thirty days. She also received one grain of phenobarbital daily, intermittently during this time. After 40 days of continuous Carbimazole therapy, she developed a sore throat and felt feverish. She stopped taking the drug immediately, and the doctor prescribed penicillin lozenges and sulphadimidine. Shortly thereafter, she became nauseated, and painful red areas developed on the right elbow and in the right groin. She became acutely ill, her temperature rose to 103.4° F., and she was hospitalized. She was found to have an inflamed ulcerated pharyngitis. There were numerous areas of cellulitis in the right elbow, right groin, perineum, and vulva. A diagnosis of agranulocytosis was made. Shortly after admission, her white blood count was 250 per cubic millimeter with a total absence of polymorphonuclear cells. She was treated with large doses of penicillin, but her condition remained essentially unchanged. A coagulase-positive penicillinase-producing staphylococcus was isolated from the secretion of one of the abscesses. She was then given 500 mg. of Aureomycin every six hours; intravenous and oral pyridoxine was given for the gastrointestinal distress. Her blood count rose rapidly from 250 on the day Aureomycin was started

to 800 lymphocytes the next day and a count of 3,750 with 28 per cent neutrophils three days later. One week after the institution of Aureomycin therapy, the white blood count was normal. Two abscesses had to be drained surgically before she completely recovered. The author points out that Carbimazole was the probable cause of the agranulocytosis, and that the reaction was probably induced by the in vivo hydrolysis of Carbimazole to methimazole.
R. W.

Anaphylaxis

Inhibition of Fatal Anaphylactic Shock in the Mouse With Cortisone. Solotorovsky, M., and Winsten, S.: J. Immunol. **72**: 177, 1954.

Mice were sensitized with repeated injections of alum-precipitated bovine albumin given at 4-day intervals. They were then divided into 2 groups. The first group received 4 injections of cortisone at thirty-six to thirty-nine days after the last sensitizing dose of antigen, while the second group received no cortisone. On the thirty-ninth day, both groups were challenged intravenously with bovine albumin. There were no deaths in the cortisone-treated animals; however, 59 per cent of the group receiving no cortisone died of anaphylactic shock.

To obtain a more accurate picture of the cortisone effect, the dosages of cortisone and of the shocking antigen were varied. All dosage levels of cortisone reduced the incidence of fatal anaphylactic shock produced by effective levels of shocking antigen. The degree of protection was proportional to the dosage of cortisone. The effective dosage range of cortisone used in these mice was considered to be comparable to that used in man. M. Cohen

The Cross Reactions Between Albumins of Different Species and Gamma Globulins of Different Species. Maurer, P. H.: J. Immunol. **72**: 119, 1954.

Antisera against egg albumin (Ea), horse serum albumin (HSA), bovine serum albumin (BSA), human gamma globulin (HGG), and bovine gamma globulin (BGG) were obtained by immunizing rabbits with these substances. The extent of homologous and cross reactivity which resulted from many various albumin and antialbumin sera and various gamma globulin and anti-gamma globulin sera was measured by quantitative immunochemical methods.

About 3 per cent of BSA cross reacted with anti HSA sera and about 6 per cent of HSA cross reacted with anti BSA sera. Ea cross reacted with anti HSA and anti BSA sera to the extent of 4 per cent and 3 per cent, respectively. This relationship was also obtained in the reciprocal cross reaction with anti Ea, for both HSA and BSA precipitated about 7 per cent and 10 per cent of the anti Ea antibody. These data appeared to indicate that there are some similar antigenic components in Ea, HSA, and BSA.

A greater similarity in antigenic or structural groupings was found among the gamma globulins than among the albumins. For example, BGG precipitated about 25 per cent of the anti HGG antibody.

On the basis of these findings, it is suggested that the results of tests involving immunologic cross reactions between various species of antigens be interpreted with caution. M. Cohen

The Genetic Control of Response to Antigenic Stimuli. Sang, J. H., and Sobey, W. R.: J. Immunol. **72**: 52, 1954.

Rabbits were injected with bovine plasma albumin (BPA) and other antigens, and their sera were measured for antibody content. Animals were

classified according to the degree and rate of antibody response and were then mated in various combinations. When rabbits with no antibody response to BPA were mated with each other, only nonresponding offspring resulted. When a slow responder to BPA was mated with a nil responder, only responding progeny resulted. Therefore, failure to produce antibodies appeared to be an inherited trait transmitted by recessive genes which were apparently distinct from those affecting rate of response.

Nonreacting animals retained injected antigen in the circulation for an abnormally long time, in contrast to reacting animals. In the latter group, antibodies were seen immediately after the circulating antigen disappeared. The response to other antigens tested in nil responders was not affected by this "genetic block to BPA." It was concluded that complete failure of rabbits to produce antibodies to BPA was genetically determined. M. Cohen

Pharmacology, Physiology, and Pathology

The Effect of Adrenal Steroids, Corticotropin, and Growth Hormone on Resistance to Experimental Infections. Kass, E. H., Lundgren, M. M., and Finland, M.: J. Exper. Med. **99**: 89, 1954.

Cortisone is known to reduce by tenfold the dose of pneumococci or influenza virus required to kill mice, whereas corticotropin does not have this effect even when it produces considerable weight loss. Growth hormone may reverse this depression of resistance by cortisone in rats. The present studies were undertaken to confirm these findings. The effect of cortisone in lowering resistance in mice was noticed within the first twenty-four hours of its administration and thus "the effect of these steroids on antibody formation does not appear to be a primary factor in the decreased resistance to infection." Weight loss was also not of great significance because weight loss in the first twenty-four hours is not over 3 per cent, and further, adrenocorticotropin may induce greater weight loss in mice without affecting resistance to infection with pneumococcal or influenzal virus organisms. It is suggested that ACTH may not affect the murine adrenal cortex in the same manner that it affects the adrenal cortex of other animals. Growth hormone administration alone did not increase resistance to infection, and it failed to help mice to overcome the effects of cortisone. Corticosterone depressed resistance to pneumococcal infections but failed to affect resistance to influenza virus. A single dose of 5 mg. cortisone may decrease resistance for from three to six days in mice.

Titers of influenza virus in infected mouse lungs showed rapid multiplication with wide variations in both experimental and control series the first day after inoculation. By the second day, there was still great individual variation and viral titers were at a peak. By the fourth day, it was apparent that the titers of control animals were dropping whereas animals treated with cortisone and hydrocortisone still maintained high virus concentrations, a situation which persisted until at least the eighth day. Corticosterone and corticotropin only slightly delayed the rate of decline of virus titers, and growth hormone was ineffective in either control or experimental animals. No antibody was detected as late as six days after infection. K.

Studies on the Transfer of Lymph Node Cells. II. Effects of Experimental Manipulation of the Donor System. Harris, T. H., Harris, S., and Farber, M. B.: J. Immunol. **72**: 161, 1954.

Cells were teased from rabbit popliteal lymph nodes which drained sites of single injections of dysentery bacilli. The transfer of these lymph node

cells intravenously into normal rabbits resulted in the formation of agglutinins to dysentery bacilli. The effects of experimental manipulation of the donor system on the transfer of lymph node cells was then studied.

Repeated injections of dysentery bacilli into the foot pads of a donor resulted in larger regional lymph nodes than those found after a single injection. Despite the increased yield of cells from the larger lymph nodes, the transfer of such cells did not produce high agglutinin titers in the recipients' sera.

When dysentery bacilli were injected together with 3 other antigens into the hind foot pads of rabbits, antibodies to all 4 antigens were found in sera of the recipients receiving the cells of the regional lymph nodes. The titer of anti-Shigella agglutinins in these animals was similar to that found when dysentery bacilli alone was used as the antigen.

When donor rabbits were treated with cortisone, small lymph nodes resulted which yielded about one-sixth the usual number of cells. Nevertheless, the cells from the hormone-treated animals were usually as effective as those obtained from the controls in producing antibodies on transfer to normal recipients. M. Cohen

The Relation of Circulating Antibody Concentration to Localization of Labeled (S^{35}) Antigen. Garvey, J. S., and Campbell, D. H.: J. Immunol. **72**: 131, 1954.

Rabbits were immunized by repeated injections of nonradioactive hemocyanin and their sera measured for precipitins. These and normal animals were then injected intravenously with radioactive antigen (labeled with S^{35}) and sacrificed six hours later. The levels of radioactivity in normal and immune tissues were measured as an index of specific concentration of antigen. When the titer of circulating antibody was greater than 0.1 mg. N per milliliter of serum, a greater localization of antigen occurred in the liver and lungs of immunized animals than in normal animals. Perfusion with saline removed radioactivity from immune liver tissue to the extent that the perfused immune liver tissue activity was essentially that of normal tissue. The liver perfusate contained antigen and antibody.

The increased uptake of antigen by the lungs of immune animals was attributed to impairment of circulation in this tissue as a result of a hypersensitive reaction. The greater localization of antigen in the liver was considered to represent the complexing of antigen with circulating antibody in this organ. M. Cohen

Precipitin Production in Chickens. XI. Site of Antibody Production. Makinodan, T., Ruth, R. F., and Wolfe, H. R.: J. Immunol. **72**: 45, 1954.

Chickens were injected intravenously with crystalline beef serum albumin, following which histologic and nucleic acid determinations were made upon the spleens and antibody measurements upon the sera.

Spleen weights increased to maximums on the third day, at which time the peak content of nucleic acids occurred. Antibody appeared on the fourth day and reached a maximum concentration on the eighth day. Since the increased amount of nucleic acids and the subsequent appearance of high concentrations of antibody protein indicated an accelerated rate of new protein synthesis, it was suggested that the spleen was a site of antibody production. M. Cohen

Precipitin Production in Chickens. X. Cellular Changes in the Spleen During Antibody Productions. Makinodan, T., Ruth, R. F., and Wolfe, H. R.: J. Immunol. **72**: 39, 1954.

Chickens were given a single intravenous injection of beef serum albumin and sacrificed at various intervals thereafter. Spleens were studied histologically, and sera were measured for antibody content.

A slight increase in spleen weight occurred on the fourth day, at which time there was an increase in plasmacytes and a decrease in lymphocytes. The increase in plasmacytes was maintained during the next four days which coincided with the appearance of circulating antibody. These findings suggested that cells of the plasmacytic series were directly involved in the production of antibodies in the chicken. M. Cohen

Effect of Cortisone on Tissue Mast Cells in the Hamster Cheek Pouch. Fulton, G. P., and Maynard, F. L.: Proc. Soc. Exper. Biol. & Med. **84**: 259, 1953.

Cortisone acetate was injected subcutaneously into adult hamsters for two or three weeks. Whole mount preparations of cheek pouches were stained and examined microscopically for mast cells, a cellular component of mesenchymal tissue believed to be related to immune responses of the body. There was a decrease in the number and size of tissue mast cells in these preparations as compared to counts in untreated animals. In the treated group, many mast cells were disrupted and surrounded by granules and amorphous stainable material. These findings indicated an inhibiting effect of cortisone on tissue mast cells. M. Cohen

Miscellaneous

Plasma and Tissue Proteins Produced by Nonhepatic Rat Organs as Studied With Lysine-E-C^{14}. Gamma Globulins the Chief Plasma Protein Fraction Produced by Nonhepatic Tissues. Miller, L. L., Bly, C. G., and Bale, W. F.: J. Exper. Med. **99**: 133, 1954.

A preparation was made of perfused rat hindquarters, with various tissues included in the preparation. Included in the perfusate was C^{14} labeled lysine. Analysis of the plasma proteins synthesized over a period of several hours and separated by sodium sulfate fractionation revealed that most of the C^{14} activity was in the globulin fraction, and that none was in the plasma fibrinogen or albumin fractions. Electrophoretic separation revealed that most of the C^{14} was in the gamma globulin fraction, some was in the alpha and beta globulin fractions, and none was in the albumin fraction. The presence or absence of gastrointestinal organs, spleen, kidneys, adrenals, and genitourinary tissues did not appreciably affect the amount of plasma protein produced. Bacterial protein synthesis, controlled by the administration of penicillin, was insignificant. It was felt that the white cell mother areas, such as bone marrow and lymph node centers, were the probable sources of gamma globulin synthesis in these preparations. K.

Benadryl Hydrochloride Given Intravenously to Control Postoperative Nausea and Vomiting. Warrington, W. R., Pasquesi, T. J., Kulasavage, R. J., and McCawley, E. L.: Surgery **34**: 837, 1953.

Benadryl, in a single dose of 100 mg., was administered intravenously just prior to induction of anesthesia in 106 surgical patients. Nausea and

vomiting occurred during the induction of anesthesia or in the immediate postoperative period in only 5 per cent of these patients as compared to 50 per cent of patients in the control series.

Intravenous Benadryl was administered postoperatively in doses of 100 mg. to 58 patients who were having nausea and vomiting. In 93 per cent of the cases, nausea subsided directly after the intravenous injection, and no further vomiting occurred. Smaller doses of the drug were less effective.

Intravenous Benadryl was also administered to 16 patients on a general medical service who had severe nausea and vomiting of varying etiology. Of 25 episodes of vomiting treated, relief of three hours or more was obtained in 18 instances.

The main side effect from Benadryl was drowsiness, but this was not undesirable in most of the patients studied. J. S.

Blood Dyscrasias Associated With Chloramphenicol. An Investigation Into the Cases in the British Isles. Hodgkinson, R.: Lancet **1**: 285, 1954.

The author presents the results of a survey, in the British Isles, of blood dyscrasias associated with chloramphenicol therapy. In 28 of the 31 cases reported, there was an aplastic anemia, and in 3 cases there was a granulocytopenia. All except 2 of the patients with aplasia showed some bleeding manifestation; such as, epistaxis, hemoptysis, hematemesis, petechial hemorrhage, or bleeding from the gums. The sternal marrow which was examined either by biopsy or at necropsy in 22 cases showed a reduction of the total cell count. Eight patients developed jaundice between the time of the administration of chloramphenicol and the onset of the blood dyscrasias. The highest incidence of reactions occurred among patients in the first decade of life. To date, 24 of the 31 cases have expired, and 3 are still being sustained by blood transfusions.

Of the 19 adults in the series, 16 received more than a total of 26 Gm. of chloramphenicol and 14 of the subjects were given over 60 Gm. of the drug. The other 3 patients received smaller dosages; e.g., one patient was given 15 Gm., another 9 Gm., and the third patient interestingly enough received only 1 Gm. of the medication. In children 100 mg. per kilogram of body weight daily for one week was considered the upper limit of normal. Of 11 children in the series, 5 received more than the normal maximum. In view of the foregoing facts, the author has made the following recommendations regarding chloramphenicol dosage schedules: in adults, a total dose should not exceed 26 Gm.; in children, not more than 100 mg. per kilogram of body weight should be given daily for seven days. Wherever possible, the length of treatment with the drug should not exceed ten days. The author especially objects to the use of this medication for the treatment of any chronic illnesses where other medications would be equally efficacious. R. W.

Studies on the Nature of Immunity to Trichinella Spiralis in Parabiotic Rats. II. A Preliminary Study of the Immune Response of the "Uninfected" Rat as Determined by Observations of Muscular Invasion. Zaiman, H., Omi, G., and Gapinski, L.: Am. J. Hyg. **57**: 306, 1953.

Studies of the diaphragms of rats whose intestinal cavities were joined with those of a trichinella-infected litter mate showed the presence of very few Trichinella larvae. K.

Studies on the Nature of Immunity to Trichinella Spiralis in Parabiotic Rats. I. A Preliminary Study of the Immune Response of the "Uninfected" Rat as Determined by Observation of the Intestinal Phase. Zaiman, H.: Am. J. Hyg. **57**: 297, 1953.

Pairs of rats which were litter mates were joined surgically so that their abdominal cavities were continuous. Trichinella larvae were then instilled into the stomach of one of the conjoined rats. One month later both of the rats and control animals were given a challenge dose of larvae by mouth. The animals were subsequently sacrificed, and counts were made of the parasites in the intestinal tract. It was found that the previously infested rat was most resistant, and that its conjoined litter mate was also resistant but to a lesser degree. It is suggested that larvae, antigen, or antibody may have been transferred from the infected animal to his litter mate. K.

The Inactivation of Complement and its Components by Plasmin. Pillemer, L., Ratinoff, O. D., Blum, L., and Lepow, I. H.: J. Exper. Med. **97**: 573, 1953.

Human and other sera were studied with regard to their complement activity before and after a specified amount of streptokinase was added to convert the inactive proteolytic enzyme plasminogen to plasmin. In other experiments, "a crude solution of human plasmin" or bovine plasmin was added to sera to be tested for their relative concentration of inhibitors. Plasmin added directly to preparations of plasma was less effective in destroying complement than streptokinase added to the whole serum except in the case of one particular fraction of serum. "Presumably the removal of plasmin inhibitors allowed the bovine or human plasmins to inactivate C'_1 and C'_3, which were partially protected in whole serum." The inactivation of complement by plasmin occurred near a neutral pH and was more complete for complement fractions C'_2 and C'_4 than for C'_1 and C'_3. The addition of streptokinase to sera of low plasminogen content (as infant sera) resulted in relatively less destruction of complement, and there was little or no inactivation of complement by streptokinase in monkey, dog, or guinea pig sera. "It has been demonstrated by others that these species contain little or no plasminogen susceptible to activation by streptokinase." When human serum was mixed with the sera of these other species both the animal and human complement were destroyed, however. The importance of inactivation of complement by plasmin is discussed with regard to immune hemolysis and with regard to stabilizing complement in laboratory sera. K.